

ABSTRACT

To provide a process for forming an improved coating film on a substrate, particularly to provide a coating film formed on a substrate, as adhered to the surface of the substrate, having a refractive index of from 1.28 to 1.38 and a contact angle with water of from 90° to 115°.

A coating film having a refractive index of from 1.28 to 1.38 and a contact angle with water of from 90° to 115°, which is formed as adhered to a substrate surface by forming a reaction mixture comprising a silicon compound (A) of the formula $\text{Si}(\text{OR})_4$, a silicon compound (B) of the formula $(\text{R}^1\text{O})_3\text{SiCH}_2\text{CH}_2(\text{CF}_2)_n\text{CH}_2\text{CH}_2\text{Si}(\text{OR}^1)_3$, an alcohol (C) of the formula $\text{R}^2\text{CH}_2\text{OH}$, and oxalic acid (D), in a specific ratio; heating this reaction mixture at a temperature of from 50 to 180°C in the absence of water, to form a solution of a polysiloxane; then applying a coating fluid comprising the polysiloxane solution on a substrate surface to form a coating; and heat-curing the coating at a temperature of from 80 to 450°C; a method for forming such a coating film; and a process for producing such a coating fluid.